# PACKAGING

THE CAHNERS MAGAZINE FOR DECISION-MAKERS/FEBRUARY 1991

C250-1A

## PACKAGING FOR TASTE

How To Ensure Your Packaging Is Flavor Neutral

The Best Of Glass in 1991

Preview Of Food Processors' Show

Stretch Bundling Combines The Unwieldy

Basic Review Of Plastic Bottles

# BREAKING NEWS

to a child who would try to reopen it. According to the Closure Manufacturers Association, Washington, D.C., some of the proposed revisions could "drastically change the types of packages permitted in the marketplace and could have an adverse and damaging impact on child safety."

**Glass coating system goes commercial:** Eastapac Co., Kingsport, Tenn., has announced commercialization of a chemical plasma deposition system for the application of a transparent silicon dioxide coating to rigid plastic containers. The system allows a coating less than 2,000 angstroms thick to be deposited on bottles, cans, trays, jars and lids made of PET and other plastics at speeds from 500 to 1,000 containers per hour. According to the company, a 50-50 joint venture between Airco Coating Technology and Eastman Chemical Co., the process greatly reduces transmission of oxygen and water vapor.

**Paper giants sign sale agreement:** Georgia-Pacific Corp. and International Paper Co. have announced that the two companies have signed an agreement for the sale of GP's interest in its French operations to IP for approximately 525 million French francs. Included in the sale are GP's interest in facilities manufacturing linerboard and corrugated medium and two packaging plants.

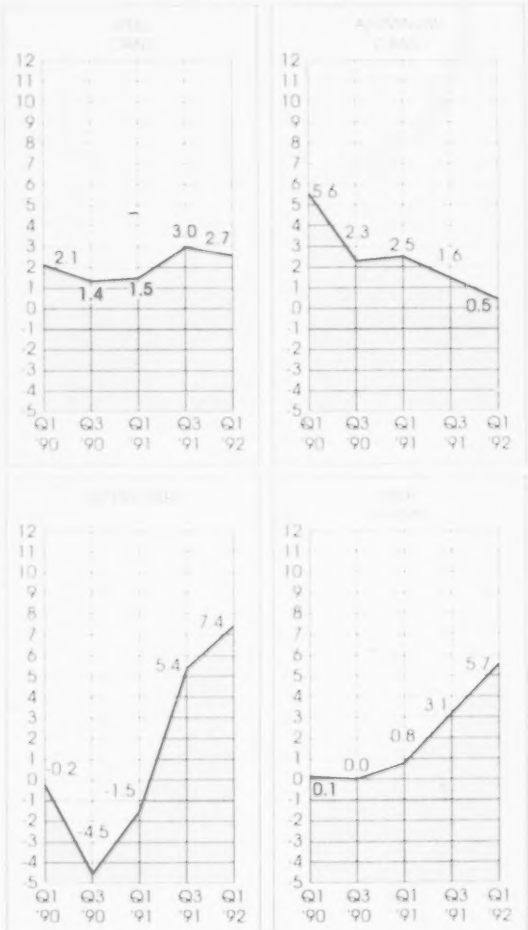
**Cahners publishes 1991 Outlook:** The economy will grow faster in the second half of this year than in the early months of 1991. That's the word from Cahners Economics, the economic research and forecasting arm of Cahners Publishing Co. The 57-page *Cahners 1991 Economic Outlook* offers a comprehensive analysis and economic projection for more than 40 manufacturing, construction and service sectors. Included are forecasts for the macro economy as well as demographic and regional trends. The book normally sells for $75, but readers of PACKAGING may obtain a copy for only $11 to cover shipping and handling. Contact Wendy Chambers by fax at (617) 630-2100 or by phone at (617) 630-2124.

**U.S. companies take 16 Worldstars:** The World Packaging Organisation has announced results of the World Packaging Competition '90. U.S. winners of the group's Worldstar awards are Paul T. Freund Co., Bradford Co., Revlon Professional Products, S.C. Johnson Wax, IBM (three awards), Amway, Packaging Corp. of America, Procter & Gamble, American Packaging Corp., American National Can, Osteonics Corp., Bagcraft Corp. of America (two awards) and Ivy Hill Packaging.

## PRICES REMAIN FLAT

The current economic slowdown (call it what you will) is having one pleasant effect: Prices of most key packaging materials are stable. The four materials charted this month—steel and aluminum cans, paperboard and fiber drums—show first quarter price moves ranging from –1.5% for paperboard to +2.5% for aluminum cans. Price hikes for cans are expected to remain moderate during the next year, as soft demand for non-packaging uses depresses costs of basic metal. But expect prices of paper-based materials to rise as the economy picks up mid-year.

**PRODUCER PRICE INDEXES**
% Change Vs. Year Ago




Data Source: Bureau of Labor Statistics Forecast: Cahners Economics

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VOLUME 36 NUMBER 2

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Machines that apply elastic film protect, unitize products and packages for high shipping efficiency at low cost

**On the cover:** Rice-A-Roni Lunch For One comes in new one-piece paperboard boxes from Westvaco Corp. Photo by Bob Hart. Page **32**

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# ENVIRONMENTAL NEWS

## Americans Know Recycling, Gallup Poll Suggests

American consumers are becoming increasingly sophisticated about producer claims of recyclability, according to a nationwide Gallup Poll conducted for the glass packaging industry.

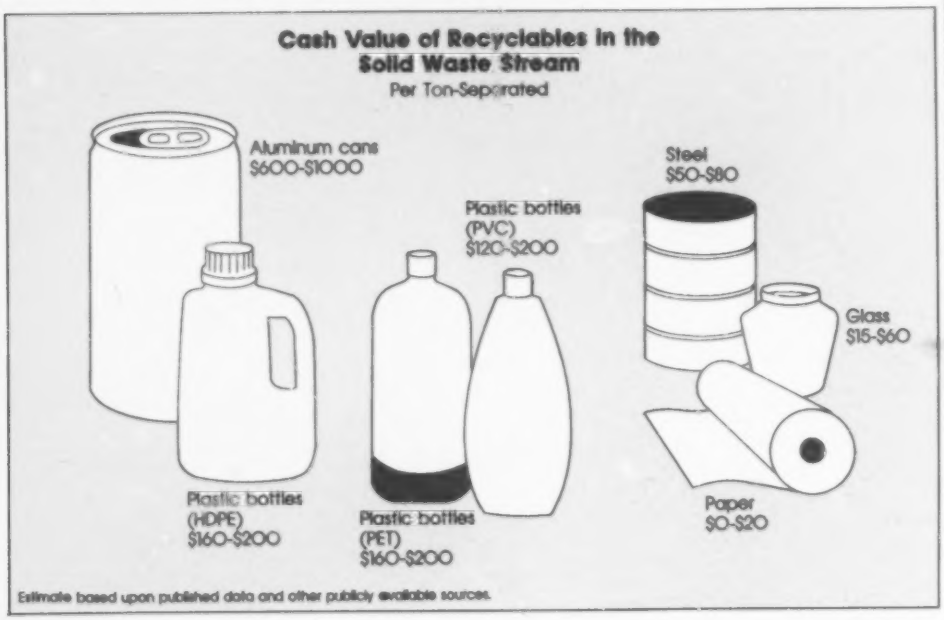
Better than two-thirds of those polled (67%) believe recycling is a closed-loop process in which a recyclable product is made into an identical product again and again.

"Consumers' better understanding of what is and is not recyclable will make it harder for manufacturers to use misleading recycling claims in the future," says Lewis D. Andrews Jr., president of the Glass Packaging Institute, which commissioned the Gallup Poll.

In other findings, more than 50% of those polled by Gallup favor curbside recycling over returning materials to recycling centers. This is twice the percentage of people who ranked curbside recycling as their first choice just two years ago.

Also, 80% of respondents say they're willing to switch to recyclable packaging if given the choice, the poll shows. This is an increase of 48% since 1988.

To obtain a copy of the findings, circle No. **430**.




## Foam Molder, Retailers Try Cushion Collection

Recycling of post-consumer expanded polystyrene foam could become a reality when Tuscarora Plastics Inc. teams up with such appliance retailers as Silo, Kmart and Sears to collect used EPS cushioning for recycling.

EPS is commonly used as protective packaging for such consumer products as TVs, home appliances and computers. Tuscarora Plastics is the largest producer of custom-molded foam plastics in the U.S.

The program, modeled after European efforts to collect and recycle shape-molded EPS, is being tested in three communities where Tuscarora maintains operations: Beaver Valley, Penn., Saginaw, Mich., and Conyers, Ga.

Customers of participating retail stores will be encouraged, via posters and fliers supplied by the molder, to return the EPS from their purchases to the retailer's site, where it will be collected in large plastic bags, also provided. From there, Tuscarora will collect the material on a regular basis and ship it to the company's plants, where it will be recycled.

A company spokesman says Tuscarora plans to be collecting EPS from as many as 1,000 retail stores by the end of 1991. Stores are already being identified for participation in the vicinity of Tuscarora's 18 plant communities throughout the country.

## Partners To Market Pulping System

Chesapeake Corp. and Stake Technology Ltd. have formed a partnership to market a system using steam explosion technology for the recycling of waste papers such as old corrugated, newsprint and mixed office waste.

The patented system reportedly provides a flexible and cost-effective alternative for pulping and de-inking secondary fiber. When fully operational, the steam explosion system will be more compact and more energy-efficient than conventional de-inking facilities, according to the companies.

The paper industry has pledged to increase the amount of recovered waste paper from 25% today to 40% in 1995. The two companies say the new technology will make that goal more achievable by lowering the capital investment and reusing some waste paper that is not recoverable today.

The partnership will operate a developmental facility as well as market the new technology through licensing agreements with waste paper handlers such as municipal recycling centers, landfill operations and paper mills.

Stake Technology Ltd., based in Toronto, owns and licenses the steam explosion process, which converts solid waste into higher-value end products.

## Program Strives For Food-Grade Recycled PET

Eastman Chemical Co. has announced plans to fund a multimillion-dollar research program that would allow use of recycled PET for food-grade packaging. The research will involve a new methanolysis process to convert post-consumer PET into its component raw materials.

Included is a continuous pilot plant of sufficient scale to allow for the design of an expected commercial methanolysis unit.

The methanolysis process involves a heat-induced chemical reaction to bring about a molecular breakdown of the plastic.

Harry Holliman, general manager of Eastman's polyester packaging business organization, said the Eastman methanolysis process is probably similar to one previously announced by Hoechst. He added that the company has conducted an "ongoing dialogue" with FDA concerning the process, and that it is performing extraction tests.

He said the company feels confident that FDA will have no objection to the process, once the agency has studied all data.

Holliman tells PACKAGING that Eastman expects the majority of its post-consumer PET to come from deposit-law states and those with established curbside-recycling programs.

**Microwave food marketers are trying to woo consumers back with a new generation of products.**

# **Taste** And Value Drive Microwave Foods

## Value-conscious shoppers aren't in the mood to experiment—zappable products and packages must deliver the goods

**By Melissa Larson**
Senior Editor

Measured in marketing time, microwave packagers may have only a few more precious minutes to convince the shopper that these food products can in fact deliver good taste and good value.

The era of microwave food experimentation is over for many consumers. They're sticking with tried-and-true brands, clipping coupons and even reacquainting themselves with the can opener and saucepan. Just owning a microwave is no guarantee a consumer will spend money on entrees, desserts and side dishes that don't measure up.

As luck would have it, many second-generation microwave products and packages now ready to hit the market feature a more carefully designed relationship between the food product and the packaging material.

Driven by materials technology in the 1980s, microwave packaging is now being simplified, streamlined and refined in an urgent attempt to garner repeat sales for frozen, refrigerated and shelf-stable foods.

### All things to all people?

Zappable packages must maintain a delicate balance of taste and technology. They must be constructed to deliver heat in an effective manner for optimum results, while preventing off-tastes or odors in the heated food. They must protect the consumer from burns during handling, yet not appear overpackaged.

Early on, some food processors were slow to learn that changes in recipe formulation needed to be made in order to obtain satisfactory results from microwave heating.

Many later zappable entries were heavy on the packaging, with several heating

## Organoleptic testing keeps packagers from costly mistakes

steps needed, but still didn't deliver the quality that shoppers felt was warranted by the price.

Several packaging factors have contributed to less-than-satisfactory food quality.

Most often talked about is the lack of browning and crisping in baked goods, meats and other dishes. Because of the way microwaves heat food and the structure of many microwave packages, there has been a soggy result in many finished food items.

Less obvious but still bothersome to many consumers are off-flavors and off-aromas, especially in cook-in microwave trays and cartons. These can be generated by interaction between the packaging materials and the food. The tray, bowl or cup, as well as any susceptor materials used within it, can produce odd flavors and smells.

Although the problem occurs more frequently in plastic packages, paperboard packages are not immune. Plastic coatings on the board which help it withstand moisture and heat can be troublesome. So can inks used to print the graphics, and adhesives used in susceptors.

**Know your melt points**

Melting points of various plastic coatings for paperboard trays must be taken into account when planning a dual-ovenable or microwave-only meal, according to several suppliers to this market.

Says one of them, "The polyethylene-coated board often used for microwave-only heating is all right for, for instance, plain vegetables, because the temperature during heating never goes above the melting point of PE—about 220-230° F. But when you add a cream or butter sauce, the temperature within the package can rise to 250°, and that's when you get odor and taste problems."

Dual-ovenable paperboard is more often coated with PET or polypropylene. These coatings have a melting point of up to 400°F, making them suitable for conventional oven heating as well.

Suppliers of plastic-coated paperboard packaging for today's microwave items also pay close attention to inks used for printing mouth-watering graphics. Specially formulated food-grade printing inks had to be developed which offered the same color quality as conventional printing inks but contained fewer volatiles that could interact unfavorably with the food.

**Science of taste**

Only recently has the interaction of polymer packaging material and food products been studied in the laboratory, using microanalysis to determine the movement of molecules between the packaging and the food itself.

But determining whether certain components of the polymer are migrating into the food or scalping flavors or other substances from the food is only part of the process. To assess the effect on flavor and aroma, organoleptic experts or taste panels are needed.

This type of research is expensive and time-consuming, but it appears to be helping both suppliers and food packagers avoid even costlier mistakes in marrying a food product with a package. Although such research is applicable to many types of plastic packaging, it seems to be particularly important for microwave products because of the relative newness of the category, the dollar volumes involved, and the fact that many polymer combinations have been experimented with.

Although university taste panels and independent testing organizations have long been available to conduct or-

**Organoleptics** is the science of food tastes and odors. Experts like this man sniff resin pellets which will become plastic food packaging to gauge their effect on food.

### Sensory Testing: New Weaponry In The Battle For Better Taste

Your hot new microwave package is a bust with consumers. High-priced glitz hasn't produced repeat sales. If you had used sensory testing, the problem would have been obvious: the package made the product taste like used athletic socks.

Flavor and odor laboratories, where highly trained panelists detect and record taste and odor impressions, are in the business of keeping packagers from making expensive mistakes.

"High temperatures during processing or sealing of plastic packaging are often to blame for off-tastes or odors," says Mike Potts of Dow Plastics' Polyolefin Taste and Odor Panel in Freeport, Tex.

Dow's center uses trained Dow employees to gather statistical sensory perceptions. At Exxon's Center for Polymer Interaction, flavor profilers are specially trained non-smokers who communicate well and can differentiate various levels of sweet, sour, salty and bitter.

Flavor and odor impressions are analyzed according to component "notes" described in terms such as "earthy," "meaty," "swimming pool" or even "used athletic socks."

Such facilities may become increasingly vital in the future as some food processors scale down and are forced to cut back on such research-and-development projects.

These and other organoleptic testing facilities help packagers avoid inadvertently turning off consumers. For more information about their services, circle No. **441** for Dow and No. **442** for Exxon.

## Second-generation susceptors are designed to avoid cracking and migration

ganoleptic studies, a few large plastics suppliers have established their own laboratories for such purposes.

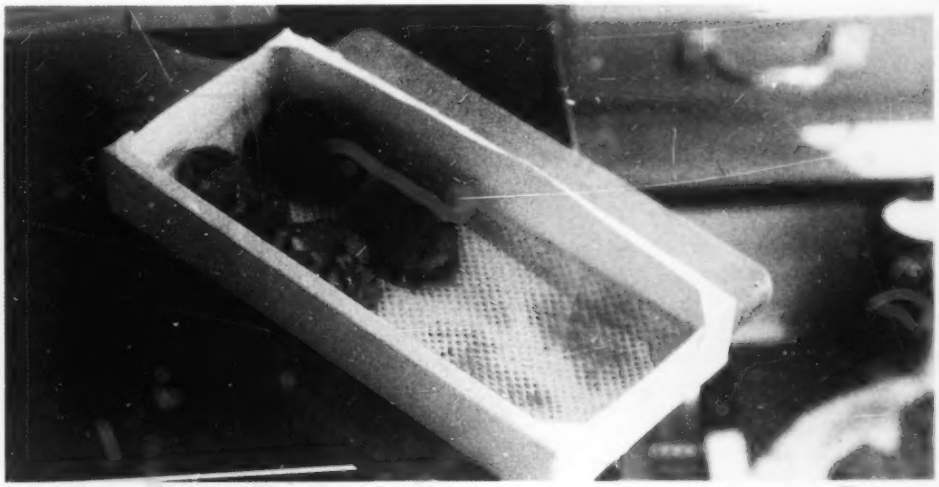
**But is it crunchy?**

Progress is being made to increase the crispiness and browning of microwave foods, which can be crucial to overall consumer satisfaction.

While the FDA has been making progress in its quest to establish the safety of thin-film susceptors—many observers feel the agency will eventually give them a clean bill of health—new technology has afforded rapid improvements in susceptors.

Demetallized "receptors" which make use of radiant heat to custom-crisp a particular product are being tested on puff pastries in the United Kingdom. So-called field-modifying aluminum foil labels placed within a dome lid are now commercial. These patches reportedly modify microwave energy to various components of a meal so that each portion is heated properly at the same time.

Other new susceptor designs thermally bond the vacuum-metallized films onto non-woven fabric backing. Heat is transferred through the fabric, which absorbs grease and aids in crispness.



**Updated susceptors** strive to deliver just the right amount of heat to the product, while absorbing grease, to boost crispness in microwave foods—and boost product satisfaction.

All-film laminates of either vacuum-metallized aluminum or sputtered stainless steel are translucent, allowing the consumer to see the food as it cooks. Still another innovation in heat management is a fibrous susceptor that conforms to the outer shape of the food item and is moisture-permeable. This design promotes heating and drying of the outer food layer so that browning crisping can result.

Suppliers of these types of susceptors seem determined to avoid the type of film cracking and potential migration of plastic, ink and adhesives that first concerned industry and the FDA.

Microwave packaging is at a turning point. For frozen items, the economic downturn comes at a time when competition among food marketers is fiercest, and as new shelf-stable and refrigerated products are nibbling away at share-of-stomach. Even established veterans of the frozen case say they are bracing for price cuts and other promotional gambits.

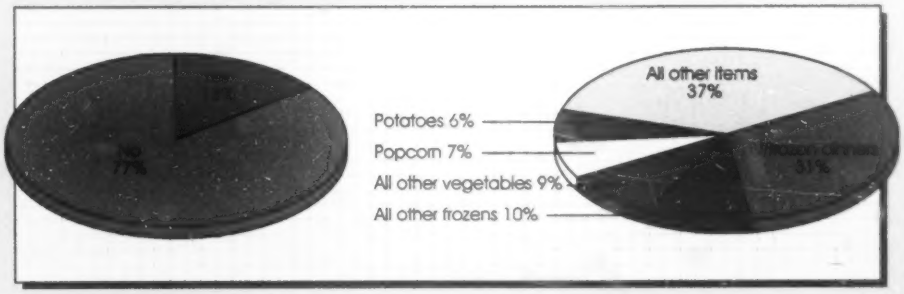
Meanwhile, marketers of shelf-stable items are striving to broaden their appeal beyond kids' meals and desk lunches into the lucrative dinner segment. Packagers of refrigerated items have seen in-store delis erode their market share.

New microwavable packaging ideas abound, but food marketers will need to prove they can successfully blend food science with packaging savvy. Consumers are sending a strong message: Good taste never goes out of style. ■

**Consumers Sometimes Perceive Off-Flavors From Cook-In Microwave Packaging**

In the past year, have you found you could "taste the package" in a microwavable food that you left in the package for cooking?

What was the food item?




Source: PACKAGING's Consumer Survey

The percentage of shoppers who notice off-flavors in cook-in microwave packaging has held steady at 12-13% in our last two annual surveys. For those who do notice such off-flavors, frozen products appear to be the biggest culprit.

**PLEASE RATE THIS ARTICLE**

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| Outstanding | 443 |
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| Average | 445 |
| Below Average | 446 |

**MELISSA LARSON**
Senior Editor

"Fears of recession have given rise to a 'show me' attitude in consumers and retailers alike. New microwavable products had better be special."

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